REMARKS

Claims 1-12 have been presented for examination.

Claim Rejections under 35 USC §103

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyer et al. (US patent number 6,002,716) in view of Maseng et al. (US patent number 5,029,186). Applicants respectfully traverse these rejections.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation in the references to combine reference teachings; Second, there must be a reasonable expectation of success; and finally, the combination of prior art must teach or suggest all the claim limitations. *See* M.P.E.P. § 2142.

As to claim 1, the Examiner has generally rejected claim 1 without specifically citing references for each and every element of the claim as required under 35 USC §103(a). For example, claims 1 recites specific steps of applying a search-based decoding algorithm to received data symbols. This limitation is not shown by either of the cited references individually or in combination. The Examiner has admitted that "... Meyer fails to teach is that the decoder being a search-based decoder having a <u>finite state machine</u>, a metrics computer for <u>computing the metrics of the received signal and estimated signal</u> and a searcher for <u>searching the path and direction of the computed metrics</u> as in claims 1,4,7 and 10." (Emphasis added). However, the Examiner has generally cited the element 22 of Maseng et al. as describing the decoding as recited in claim 1. Applicants would like to respectfully point to the Examiner that Maseng et al. generally describes element 22 as common Viterbi decoder 22, <u>possibly a filter having an impulse response equal to the ambiguity function of the channel estimator</u> (*see* col. 3, lines 37-42, emphasis added). No where in the cited sections, Maseng et al. describe element 22 as decoding data symbols as recited in claim 1.

Further, cited references individually or in combination do not describe receiving data symbols <u>resulting from encoding</u> performed on <u>a sequence of information bits via a cascade of</u>

finite state machine representations of an error control code in combination with said communication channel as recited in claim 1. In contrast, Maseng et al. requires that the relationship between data and symbols be known by the receiver and that this relationship forms the basis of Maseng et al.'s invention (*see* col. 2, lines 29-34). Thus, cited references individually or in combination do not teach, suggest or describe all limitations of claim 1.

Furthermore, according to Maseng et al., the adaptive DPM receiver shown in figure 2 is "intended for co-operation with a transmitter having a modulator as illustrated in Fig. 1." (Col. 3, lines 31-34, emphasis added). In contrast, Meyer et al. do not have such limitation. Combining Maseng et al.'s teaching with Meyer et al. renders Meyer et al. inoperable for its intended purpose and limits Meyer et al. to the type of transmitters illustrated in Fig. 1 of Maseng et al. Therefore, first, Maseng et al. cannot be combined with Meyer et al., second, even if the cited references are combined, there cannot be a reasonable expectation of success for using Meyer et al. for its intended purpose; and finally, their combination does not teach every limitation of claim 1. Accordingly, the Examiner has failed to establish a *prima facie* case of obviousness as required under 35 USC 103(a) and Applicants believe that claim 1 is patentably distinguishable from the combination of the cited references and in condition for allowance.

Claims 2-3 depend from claim 1 and are patentably distinguishable from the combination of cited references for at least the same reasons as claim 1.

Claims 4-6 have been rejected in the manner of claim 1. Accordingly, claims 4-6 are patentably distinguishable from the combination of cited references for at least the same reasons as claim 1. Further, claim 4 recites an apparatus with specific elements such as a receiver and a processor with recited functionalities. The Examiner has not cited any comparable element in the combination of the cited references that teach elements and functionalities as recited in claim 4. Accordingly, claim 4 is further patentably distinguishable from the combination of the cited references.

As to claim 7, The Examiner has not cited any reference that teach each and every element of claim 7. For example, the Examiner has cited a channel estimator 8, a symbol estimator 11, and an output "circuit" 13 of Meyer et al. to reject claim 7. Applicants respectfully

point to the Examiner that claim 7 recites more elements than cited by the Examiner such as a branch metric calculator and a sequential decoding algorithm for which the Examiner has not cited any reference.

Further, as to the symbol estimator, the Examiner has stated that the symbol estimator 11 of Meyer et al. is for "for estimating the received symbol according to the estimated channel characteristics (see output from the estimator 8)." (Page 3 of OA, emphasis added). Applicants respectfully disagree with this correlation. Claim 7 recites that said symbol estimator emulating a finite state machine to compute estimates of received data symbols as the algorithm moves along branches of a trellis. In contrast, Meyer et al. state that "the symbol estimator 11 makes a symbol estimation with state reduction according to the Maximum Likelihood Sequence Estimation (MLSE) method via a Viterbi algorithm." (Col. 5, lines28-32). Accordingly, claim 7 recites patentably distinguishable symbol estimator than what Meyer et al. has described.

Furthermore, the Examiner has stated that "data output circuit 13, claimed information retrieval in claim 7, for output the final output signal as in claims 1,4,7,9 (claimed uncoder in claim 9) and 10." (Page 3 of OA, emphasis added). Applicants respectfully point to the Examiner that a careful reading of element 13 in Meyer et al. reveal that the element 13 is not a "circuit" instead, it is the representation of transmitted payload data (*please see* col. 5, lines 37-38). Therefore, Meyer et al. do not describe an information retrieval module as recited in claim 7. Accordingly, claim 7 is further patentably distinguishable from the combination of cited references.

Claims 8-9 depend from claim 7 and are patentably distinguishable from the combination of cited references for at least the same reasons as claim 7.

Claims 10-12 have been rejected in the manner of claims 7-9. Accordingly, claims 10-12 are patentably distinguishable from the combination of cited references for at least the same reason as claims 7-9.

Applicant believes this application and the claims herein to be in a condition for allowance. Should the Examiner have further inquiry concerning these matters, please contact the below named attorney for Applicant.

Respectfully submitted,

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